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(54) Title: AUXIN TRANSPORT PROTEINS

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                          ***  * * *  * *******  ***** ** ** ************ ***********
SEQ ID NO:14              MITALDLYHVLTAVVPLYVAMTLAYGSVRWWRIFTPDQCSGINRFVALFAVPLLSFHFIS
SEQ ID NO:30              MITLTDFYHVMTAMVPLYVAMILAYGSVKWWKIFSPDQCSGINRFVALFAVPLLSFHFIA
SEQ ID NO:34              MITGKDIYDVFAAIVPLYVAMILAYGSVRWWKIFTPDQCSGINRFVAVFAVPLLSFHFIS
SEQ ID NO:38              MITGKDIYDVLAAVVPLYVAMFMAYGSVRWWGIFTPDQCSGINRFVAVFAVPLLSFHFIS
SEQ ID NO:43              MITGKDMYDVLAAMVPLYVAMILAYGSVRWWGIFTPDQCSGINRFVAVFAVPLLSFHFIS
SEQ ID NO:44              MITAADFYHVMTAMVPLYVAMILAYGSVKWWKIFTPDQCSGINRFVALFAVPLLSFHFIA
                          1                                                          60

                           * *  *   * *** ***   *  *      *      *          * * ******
SEQ ID NO:14              TNDPFAMNLRFLAADTLQKVAVLALLALASRGLSSPRALG---------LDWSITLFSLS
SEQ ID NO:30              SNNPYEMNLRFLAADTLQKIIILVLLAVW----SNITKRG--------CLEWAITLFSLS
SEQ ID NO:34              SNDPYAMNYHFIAADCLQKVVILGALFLWNT----FTKHG--------SLDWTITLFSLS
SEQ ID NO:38              TNDPYAMDYRFLAADSLQKLVILAALAVWHNVLSRYRCRGGTEAGEASSLDWTITLFSLA
SEQ ID NO:43              SNDPYAMNYHFLAADSLQKVVILAALFLWQA----FSRRG--------SLEWMITLFSLS
SEQ ID NO:44              ANNPYAMNLRFLAADSLQKVIVLSLLFLW----CKLSRNG--------SLDWTITLFSLS
                          61                                                         120

                          *************  ***  * * **** ****  ******** ** * *  *   ***
SEQ ID NO:14              TLPNTLVMGIPLLRGMYGASSAGTLMVQVVVLQCIIWYTLMLFLFEYRAARALVLDQFPD
SEQ ID NO:30              TLPNTLVMGIPLLKGMYGDFS-GSLMVQIVVLQCIIWYTLMLFLFEFRGARMLISEQFP-
SEQ ID NO:34              TLPNTLVMGIPLLKAMYGDFS-GSLMVQIVVLQSVIWYTLMLFMFEYRGAKLLITEQFP-
SEQ ID NO:38              TLPNTLVMGIPLLRAMYGDFS-GSLMVQIVVLQSVIWYTLMLFLFEYRGAKALISEQFPP
SEQ ID NO:43              TLPNTLVMGIPLLRAMYGDFS-GNLMVQIVVLQSIIWYTLMLFLFEFRGAKLLISEQFP-
SEQ ID NO:44              TLPNTLVMGIPLLKGMYGNFS-GDLMVQIVVLQCIIWYILMLFLFEYRGAKLLISEQFP-
                          121                                                        180
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(57) Abstract

This invention relates to an isolated nucleic acid fragment encoding an auxin transport protein. The invention also relates to the construction of a chimeric gene encoding all or a substantial portion of the auxin transport protein, in sense or antisense orientation, wherein expression of the chimeric gene results in production of altered levels of the auxin transport protein in a transformed host cell. The present invention also relates to methods using the auxin transport protein in modulating root development, and in discovering compounds with potential herbicidal activity.